

Appl. No 10/734,540

Amdt. Dated 03/09/2006

Reply to Office action of 12/29/2005

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REMARKS/ARGUMENTS

The term “tensile stress” in claim 5 refers to “tensile strength, yield”.

Claims 1-8 are rejected under U.S.C 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The terms “hard” and “soft”
10 are relative terms and have no basis for comparison within the claims. To overcome this rejection, claim 1 has amended to limit the “soft portion” to “the hardness of the material of the soft portion is 35D-63D” by adding claim 4 to claim 1.

The terms “can be” in claim 1 have been changed to “is”.

15 Claim 3 has been amended by changing the limitation “can be made of thermoplastic elastic material” to “is made of thermoplastic elastic material”.

Claim 6 has been amended by deleting the limitation “normal atmospheric temperature”.

Claims 1-3, 7 and 8 are rejected under 35 U.S.C 103(a) as being
20 unpatentable over Lundgren (US Patent 4173907) in view of Benton et al (US Patent 4859394). The applicant believes that the application is different from the cited references because of the following reasons:

First, the present invention particularly relates to the reflow device,

while the two cited references Lundgren (US Patent 4173907) and Benton et al (US Patent 4859394) are directed to the nut structure. The sentences "...the reflow...soft portion" as mentioned in claim 1 clearly show that the principle characteristic of the present invention is the unloaded area of the reflow device,
5 namely the reflow passage. It is to be noted that the reflow device is not the nut but is fixed at both ends of the nut for enabling the rollers to recirculate. As clearly shown in the attached drawing, the reflow unit 50 includes a hard portion 51 and a soft portion 52, and the soft portion 52 is designed to prevent direct contact and collision between the rollers 40 and the hard portion 51. As
10 particularly shown in Fig. 3, the hard portion 51 is separated from the rollers 40 by the soft portion 52. This soft portion 52 is located inside the reflow unit 50, the screw nut is still made of steel in order to maintain the hardness and strength. The limitation in claim 1 "the reflow device including hard portion and soft portion, rolling balls entering the reflow device will be surrounded by
15 the soft portion, the hard portion combine with the soft portion" further indicates that the soft portion is located between hard portion and rolling balls.

Second, the nut structure of the cited reference US Patent 4173907 comprises the rollers 3, the sleeve 7 comprising an inner portion 4, 8 of resiliently deformable material with a comparatively hard surface having a
20 helically shaped raceway for the rolling bodies, and an outer portion 5 provided with a recirculation channel 6 for the rolling bodies. The rollers 3 in the raceway of the nut are in a loaded condition and come into contact with the hard surface of the inner portion of the sleeve during movement. Therefore,

noise will be generated. Furthermore, regarding the reflow passage, the rollers 3 also will contact the sheet metal sleeve 7 when moving in the recirculation channel 6 (equivalent of the reflow passage of the present application), as shown in Fig. 2 of Lundgren. Therefore, the design of the reflow channel of US 5 Patent 4173907 is quite different from that of the present invention, and US Patent 4173907 doesn't have the noise-reduction function as the present invention does.

Third, the method of the present invention is different from that of Lundgren, the present invention uses the soft portion to cover the reflow system to eliminate the noise caused by the impact between the rollers and the hard surface of the recirculating passage, in short, the present invention is emphasized on the improvement of the reflow passage of the reflow device, however, Lundgren particularly focuses on the structure of the screw nut.

Fourth, the present invention is functionally different from Lundgren. 15 The soft portion 52 of the present invention is used to absorb the kinetic energy of the rollers to prevent the rollers from directly contact the hard portion 51. However, the rollers 3 of Lundgren in the reflow channel 6 will directly contact the metal sleeve 7, thus noise will be generated.

Regarding Benton, which also essentially focuses on the nut structure, 20 and the nut of Benton is made of a single material with a single hardness, namely, Benton doesn't have the hard portion and the soft portion as the present application does.

In view of the foregoing amendments and arguments, applicant submits

that the application is now in a condition for allowance and such action is respectfully requested. If any points remain in issue, which the Examiner feels could best be resolved by either a personal or a telephone interview, he is urged to contact Applicant's attorney at the exchange listed below.

5 Applicant respectfully request that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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